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NEWS 20 May 19 RAPRA enhanced with new search field, simultaneous left and right truncation
NEWS 21 Jun 06 Simultaneous left and right truncation added to CBNB
NEWS 22 Jun 06 PASCAL enhanced with additional data
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NEWS 24 Jun 25 HSDB has been reloaded
NEWS 25 Jul 16 Data from 1960-1976 added to RDISCLOSURE
NEWS 26 Jul 21 Identification of STN records implemented
NEWS 27 Jul 21 Polymer class term count added to REGISTRY
NEWS 28 Jul 22 INPADOC: Basic index (/BI) enhanced; Simultaneous Left and Right Truncation available
NEWS 29 AUG 05 New pricing for EUROPATFULL and PCTFULL effective August 1, 2003
NEWS 30 AUG 13 Field Availability (/FA) field enhanced in BEILSTEIN
NEWS 31 AUG 15 PATDPAFULL: one FREE connect hour, per account, in September 2003
NEWS 32 AUG 15 PCTGEN: one FREE connect hour, per account, in September 2003
NEWS 33 AUG 15 RDISCLOSURE: one FREE connect hour, per account, in September 2003
NEWS 34 AUG 15 TEMA: one FREE connect hour, per account, in September 2003
NEWS 35 AUG 18 Data available for download as a PDF in RDISCLOSURE
NEWS 36 AUG 18 Simultaneous left and right truncation added to PASCAL
NEWS 37 AUG 18 FROSTI and KOSMET enhanced with Simultaneous Left and Right Truncation

NEWS 38 AUG 18 Simultaneous left and right truncation added to ANABSTR

NEWS EXPRESS April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003

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=> file medline, uspatful, dgene, embase, wpids, fsta, jatio, hcplus, biosis
COST IN U.S. DOLLARS SINCE FILE TOTAL
ENTRY SESSION
FULL ESTIMATED COST 0.21 0.21

FILE 'MEDLINE' ENTERED AT 18:23:35 ON 19 AUG 2003

FILE 'USPATFULL' ENTERED AT 18:23:35 ON 19 AUG 2003
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FILE 'BIOSIS' ENTERED AT 18:23:35 ON 19 AUG 2003
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=> S DNA encoding water channel protein
      5 FILES SEARCHED...
L1          0 DNA ENCODING WATER CHANNEL PROTEIN
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=> s water channel protein.
L2 1616 WATER CHANNEL PROTEIN

=> s 12 and DNA
L3 1064 L2 AND DNA

=> s 13 and sequence
L4 1041 L3 AND SEQUENCE

=> s 14 and aquapolin
L5 1 L4 AND AQUAPOLIN

=> d 15 ti abs ibib tot

L5 ANSWER 1 OF 1 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
TI Molecular cloning and expression of **aquapolin 1 (AQP1)** in dog
kidney and erythroblasts.
AB Complementary DNA of the water channel **aquapolin 1** (AQP1) was cloned from dog kidney and erythroblasts. The cDNA amplified from mRNA in dog kidney was 816 bp, the same as that in bovines, but longer by 6 bp than that in humans, mice and rats. The 235-bp fragment cDNA amplified from the mRNA in dog erythroblasts, which was differentiated from peripheral blood, was completely identical to the corresponding **sequence** of cDNA from the dog kidney. Thus, mature red blood cells from dog may have AQP1 in their cell membranes. The amino acid **sequence** in dog AQP1 was 91-94% identical to that in the other species mentioned above. Dog AQP1 has six predicted transmembrane domains, two NPA motifs, one mercury-sensitive site and four consensus phosphorylation sites, the same as the other species. However, dog and bovine AQP1 have only one N-glycosylation site, while two glycosylation sites were found in human and rodent AQP1. Xenopus oocytes injected with the mRNA of the dog AQP1 exhibited high water permeability in a hypotonic medium. Thus, dog AQP1 performs water transport the same as in the other species.

ACCESSION NUMBER: 2000:226999 BIOSIS
DOCUMENT NUMBER: PREV200000226999
TITLE: Molecular cloning and expression of **aquapolin 1 (AQP1)** in dog kidney and erythroblasts.
AUTHOR(S): Higa, Kazunari; Ochiai, Hideharu; Fujise, Hiroshi (1)
CORPORATE SOURCE: (1) Laboratory of Pathobiochemistry, School of Veterinary
Medicine, Azabu University, Fuchinobe, Sagamihara,
Kanagawa, 229-8501 Japan
SOURCE: Biochimica et Biophysica Acta, (Feb. 15, 2000) Vol. 1463,
No. 2, pp. 374-382.
ISSN: 0006-3002.
DOCUMENT TYPE: Article
LANGUAGE: English
SUMMARY LANGUAGE: English

=> d his

(FILE 'HOME' ENTERED AT 18:23:02 ON 19 AUG 2003)

FILE 'MEDLINE, USPATFULL, DGENE, EMBASE, WPIDS, FSTA, JAPIO, HCAPLUS,
BIOSIS' ENTERED AT 18:23:35 ON 19 AUG 2003

L1 0 S DNA ENCODING WATER CHANNEL PROTEIN
L2 1616 S WATER CHANNEL PROTEIN
L3 1064 S L2 AND DNA
L4 1041 S L3 AND SEQUENCE
L5 1 S L4 AND AQUAPOLIN

=> d 14 ti abs ibib 1-10

L4 ANSWER 1 OF 1041 MEDLINE on STN
TI Molecular and cellular characterization of a **water-channel protein**, AQP-h3, specifically expressed in the

frog ventral skin.

AB Two cDNAs encoding frog aquaporin (AQP) were cloned from a cDNA library constructed for the ventral skin of the tree frog, *Hyla japonica* and sequenced. One AQP (*Hyla* AQP-h1) consisted of 271 amino-acid residues with high homology to toad AQP-t1, *Rana* CHIP28 (AQP1), and rat AQP1. The other AQP (AQP-h3) consisted of 271 amino-acid residues with higher homology to mammalian AQP2 than to mammalian AQP3. The predicted amino-acid sequence contained the conserved two NPA motifs found in all MIP family members and the putative six transmembrane domains. The sequence also confers mercurial sensitivity, which is common to all the AQPs except AQP0, AQP4 and AQP7. Potential N-glycosylation sites were present at Asn-44 in AQP-h1, and at Asn-124 and Asn-125 in AQP-h3. In addition, AQP-h3 had a putative phosphorylation site by protein kinase A at Ser-255, which is identical to mammalian AQP2. In swelling assays using *Xenopus* oocytes, AQP-h1 facilitates water permeability, whereas AQP-h3 displayed weak water permeability. Searching for the expression of these two AQP mRNAs revealed that AQP-h1 was expressed in most tissues, whereas AQP-h3 was observed only in the ventral skin. An antibody (ST-141) against the C-terminal peptide of the AQP-h3 protein recognized a 29.0 kDa-protein with a molecular mass close to that of the *Hyla* AQP-h3 protein and immunostained predominantly in the abdominal pelvic skin. In pelvic skin, the label for AQP-h3 was more intense in the upper layer of the stratum granulosum and was localized to both the apical and basolateral plasma membranes of the principal cells. These findings suggest that *Hyla* AQP-h3 plays a pivotal role in constitutively absorbing water from ventral pelvic skin.

ACCESSION NUMBER: 2002416196 MEDLINE

DOCUMENT NUMBER: 22162707 PubMed ID: 12172646

TITLE: Molecular and cellular characterization of a **water**-channel protein, AQP-h3, specifically expressed in the frog ventral skin.

AUTHOR: Tanii H; Hasegawa T; Hirakawa N; Suzuki M; Tanaka S

CORPORATE SOURCE: Department of Biology, Faculty of Science, Shizuoka University, Ohya 836, Shizuoka 422-8529, Japan.

SOURCE: JOURNAL OF MEMBRANE BIOLOGY, (2002 Jul 1) 188 (1) 43-53.
Journal code: 0211301. ISSN: 0022-2631.

PUB. COUNTRY: United States

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200301

ENTRY DATE: Entered STN: 20020813

Last Updated on STN: 20030123

Entered Medline: 20030122

L4 ANSWER 2 OF 1041 MEDLINE on STN

TI A functional water channel protein in the pathogenic bacterium *Brucella abortus*.

AB The gene for a new bacterial aquaporin, AqpX, was cloned from the pathogenic Gram-negative bacterium BRUCELLA: abortus. The gene was mapped on the large chromosome of *B. abortus*. It is flanked by one upstream and two downstream copies of the BRUCELLA: repeated sequence Bru-RS. Prediction from the nucleotide sequence indicated that the protein is a member of the MIP family, which comprises channels for water and/or solute transport. Expression in XENOPUS: oocytes and cryoelectron microscopy of *Escherichia coli* cells transformed with the aqpX gene confirmed that the protein is an efficient water channel. Glycerol uptake experiments in *E. coli* also showed that the protein is not able to transport glycerol.

ACCESSION NUMBER: 2001115902 MEDLINE

DOCUMENT NUMBER: 20553188 PubMed ID: 11101683

TITLE: A functional water channel protein in the pathogenic bacterium *Brucella abortus*.

AUTHOR: Rodriguez M C; Froger A; Rolland J P; Thomas D; Aguero J;
Delamarche C; Garcia-Lobo J M

CORPORATE SOURCE: Departamento de Biología Molecular, Facultad de Medicina,
Universidad de Cantabria, Unidad asociada al Centro de
Investigaciones Biológicas, CSIC, Cardenal Herrera Oria
s/n, 39011 Santander, Spain.

SOURCE: MICROBIOLOGY, (2000 Dec) 146 Pt 12 3251-7.
Journal code: 9430468. ISSN: 1350-0872.

PUB. COUNTRY: ENGLAND: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

OTHER SOURCE: GENBANK-AF148066

ENTRY MONTH: 200102

ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010215

L4 ANSWER 3 OF 1041 MEDLINE on STN

TI Cloning of an aquaporin-like cDNA and in situ hybridization in adults of the mosquito *Aedes aegypti* (Diptera: Culicidae).

AB A cDNA encoding a putative **water channel protein**, aquaporin, was cloned from a cDNA library of *Aedes aegypti* Malpighian tubules. The cDNA encodes a 26.11 kDa protein similar to insect aquaporins from *Haematobia irritans exigua* (Diptera) and *Cicadella viridis* (Homoptera), and to mammalian aquaporin 4. Localization of the messenger RNA (mRNA) was performed by in situ hybridization of Malpighian tubules and analysed by fluorescence and confocal microscopy. The mRNA was localized in tracheolar cells associated with the Malpighian tubules. No signal was detected in the Malpighian tubule epithelium. The molecular mechanisms for water movement between tissues and tracheoles are not yet elucidated in insects. Our results suggest a model to explain fluid movements in tracheoles during insect respiration.

ACCESSION NUMBER: 2001009930 MEDLINE

DOCUMENT NUMBER: 20428297 PubMed ID: 10971718

TITLE: Cloning of an aquaporin-like cDNA and in situ hybridization in adults of the mosquito *Aedes aegypti* (Diptera: Culicidae).

AUTHOR: Pietrantonio P V; Jagge C; Keeley L L; Ross L S

CORPORATE SOURCE: Department of Entomology, Texas A & M University, College Station, TX 77843-2475, USA.. p-pietrantonio@tamu.edu

CONTRACT NUMBER: 446191

SOURCE: INSECT MOLECULAR BIOLOGY, (2000 Aug) 9 (4) 407-18.
Journal code: 9303579. ISSN: 0962-1075.

PUB. COUNTRY: ENGLAND: United Kingdom

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200010

ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001026

L4 ANSWER 4 OF 1041 MEDLINE on STN

TI Differential regulation of rat aquaporin-5 promoter/enhancer activities in lung and salivary epithelial cells.

AB Aquaporin-5 (AQP5) is a **water channel protein** that is selectively expressed in respiratory, salivary, and lacrimal tissues. In order to establish the tissue-specific transcriptional programs that underlie its lung- and salivary-specific expression, a 4.5-kilobase pair DNA fragment encompassing the 5'-flanking region of the rat AQP5 gene has been characterized in detail. A major transcription start site utilized in lung and salivary glands has been localized downstream of a TATAA-like motif. Transient transfection assays

of -4.3- and -1.7-AQP5-luciferase constructs in AQP5-expressing lung (MLE-15) and salivary (Pa-4) cells and nonexpressing fibroblast (NIH3T3) and epithelial (HeLa) cells demonstrate preferential transcriptional enhancement of reporter activities in MLE-15 and Pa-4 cells. Transient transfection assays of a series of 5' --> 3' deletion constructs of -4.3-AQP5-luciferase suggest that a common salivary and lung enhancer is located between nucleotides -274 and -139, and a lung-specific enhancer is located between nucleotides -894 and -710. There is one putative lung-specific repressor located in the region of nucleotides -1003/-894 and a common lung and salivary repressor located at nucleotides -503/-385. Moreover, 3' --> 5' deletions up to -171 and -127 base pairs almost abolish transcriptional activation in salivary and lung cells, respectively. Together, our findings indicate that the combination of enhancer/repressor elements within the proximal 5'-flanking region of rat AQP5 gene dictates its restricted expression in both lung and salivary cells.

ACCESSION NUMBER: 2000458614 MEDLINE
DOCUMENT NUMBER: 20409006 PubMed ID: 10849430
TITLE: Differential regulation of rat aquaporin-5 promoter/enhancer activities in lung and salivary epithelial cells.
AUTHOR: Borok Z; Li X; Fernandes V F; Zhou B; Ann D K; Crandall E D
CORPORATE SOURCE: Division of Pulmonary and Critical Care Medicine,
Department of Medicine, Will Rogers Institute Pulmonary
Research Center, Los Angeles, CA 90033, USA..
zborok@hsc.usc.edu
CONTRACT NUMBER: DE 10742 (NIDCR)
HL38578 (NHLBI)
HL38621 (NHLBI)
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Aug 25) 275 (34)
26507-14.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200009
ENTRY DATE: Entered STN: 20001005
Last Updated on STN: 20001005
Entered Medline: 20000925

L4 ANSWER 5 OF 1041 MEDLINE on STN
TI Rapid stalk elongation in tulip (*Tulipa gesneriana* L. cv. Apeldoorn) and the combined action of cold-induced invertase and the **water-channel protein gammaTIP**.
AB Many bulbous plants need a low-temperature treatment for flowering. Cold, for example, affects the elongation of the stalk, thereby influencing the quality of the cut flower. How the elongation of the stalk is promoted by cold and which physiological and biochemical mechanisms are involved have remained obscure. As invertase has been shown to be involved in the cold-induced elongation of the flower stalks of tulips (Lambrechts et al., 1994, *Plant Physiol* 104: 515-520), we further characterized this enzyme by cloning the cDNA and analysing its expression in various tissues of the tulip (*Tulipa gesneriana* L. cv. Apeldoorn) stalk. In addition, the role of sucrose synthase was investigated. Since turgor pressure is an important force driving cell elongation, the role of a **water-channel protein (gammaTIP)** was studied in relation to these two enzymes. The mRNA level of the invertase found was substantially up-regulated as a result of cold treatment. Analysis of the amino acid **sequence** of this invertase revealed the presence of a vacuolar targeting signal. Two different forms of sucrose synthase were found, the expression of one of them appeared to be restricted to the vascular tissue while the other form was present in the surrounding tissue. Both sucrose synthases were present in the stalk during the

entire period of bulb storage and after planting, but their activities declined during stalk elongation. The expression of the gammaTIP gene was restricted mainly to the vascular tissue and its expression profile was identical to that of invertase. Simultaneous expression of invertase and gammaTIP possibly leads to an increase in osmotic potential and vacuolar water uptake, thus providing a driving force for stretching the stalk cells.

ACCESSION NUMBER: 1999431723 MEDLINE
DOCUMENT NUMBER: 99431723 PubMed ID: 10502102
TITLE: Rapid stalk elongation in tulip (*Tulipa gesneriana* L. cv. Apeldoorn) and the combined action of cold-induced invertase and the water-channel protein gammaTIP.
AUTHOR: Balk P A; de Boer A D
CORPORATE SOURCE: Agrotechnological Research Institute, Department of Molecular Regulation and Plant Quality, Bornsesteeg 59, P.O. Box 17, 6700 AA Wageningen, The Netherlands.
SOURCE: PLANTA, (1999 Sep) 209 (3) 346-54.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-X95650; GENBANK-X95651; GENBANK-X96938; GENBANK-X96939; GENBANK-X97642; GENBANK-X97643
ENTRY MONTH: 199911
ENTRY DATE: Entered STN: 20000113
Last Updated on STN: 20000113
Entered Medline: 19991130

L4 ANSWER 6 OF 1041 MEDLINE on STN
TI Cloning and chromosomal localization of mouse aquaporin 4: exclusion of a candidate mutant phenotype, ataxia.
AB Aquaporin-4 is a mammalian water channel protein that is predominately expressed in brain, where it is believed to mediate water homeostasis. Here we report the isolation and characterization of the cDNA for mouse Aqp4 and map the gene to the proximal region of mouse chromosome 18. This region contains the neurological mutation ataxia, but further analysis reveals that Aqp4 is not responsible for the ataxia phenotype.

ACCESSION NUMBER: 97288526 MEDLINE
DOCUMENT NUMBER: 97288526 PubMed ID: 9143504
TITLE: Cloning and chromosomal localization of mouse aquaporin 4: exclusion of a candidate mutant phenotype, ataxia.
AUTHOR: Turtzo L C; Lee M D; Lu M; Smith B L; Copeland N G; Gilbert D J; Jenkins N A; Agre P
CORPORATE SOURCE: Department of Biological Chemistry, Johns Hopkins University School of Medicine, Baltimore, Maryland 21205-2185, USA.
CONTRACT NUMBER: GM07309 (NIGMS)
HL3391 (NHLBI)
HL48268 (NHLBI)
SOURCE: GENOMICS, (1997 Apr 15) 41 (2) 267-70.
Journal code: 8800135. ISSN: 0888-7543.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U88623
ENTRY MONTH: 199707
ENTRY DATE: Entered STN: 19970805
Last Updated on STN: 19970805
Entered Medline: 19970718

L4 ANSWER 7 OF 1041 MEDLINE on STN
TI The human AQP4 gene: definition of the locus encoding two water channel polypeptides in brain.
AB The aquaporin family of membrane water transport proteins are expressed in diverse tissues, and in brain the predominant water channel protein is AQP4. Here we report the isolation and characterization of the human AQP4 cDNAs and genomic DNA. Two cDNAs were isolated corresponding to the two initiating methionines (M1 in a 323-aa polypeptide and M23 in a 301-aa polypeptide) previously identified in rat [Jung, J.S., Bhat, R.V., Preston, G.M., Guggino, W.B. & Agre, P. (1994) Proc. Natl. Acad. Sci. USA 91, 13052-13056]. Similar to other aquaporins, the AQP4 gene is composed of four exons encoding 127, 55, 27, and 92 amino acids separated by introns of 0.8, 0.3, and 5.2 kb. Unlike other aquaporins, an alternative coding initiation sequence (designated exon 0) was located 2.7 kb upstream of exon 1. When spliced together, M1 and the subsequent 10 amino acids are encoded by exon 0; the next 11 amino acids and M23 are encoded by exon 1. Transcription initiation sites have been mapped in the proximal promoters of exons 0 and 1. RNase protection revealed distinct transcripts corresponding to M1 and M23 mRNAs, and AQP4 immunoblots of cerebellum demonstrated reactive polypeptides of 31 and 34 kDa. Using a P1 and a lambda EMBL subclone, the chromosomal site of the human AQP4 gene was mapped to chromosome 18 at the junction of q11.2 and q12.1 by fluorescence in situ hybridization. These studies may now permit molecular characterization of AQP4 during human development and in clinical disorders.

ACCESSION NUMBER: 97008105 MEDLINE
DOCUMENT NUMBER: 97008105 PubMed ID: 8855281
TITLE: The human AQP4 gene: definition of the locus encoding two water channel polypeptides in brain.
AUTHOR: Lu M; Lee M D; Smith B L; Jung J S; Agre P; Verdijk M A; Merkx G; Rijss J P; Deen P M
CORPORATE SOURCE: Department of Biological Chemistry, Johns Hopkins University School of Medicine, Baltimore, MD 21205-2185, USA.
CONTRACT NUMBER: EY11239 (NEI)
HL33991 (NHLBI)
HL48268 (NHLBI)
+
SOURCE: PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1996 Oct 1) 93 (20) 10908-12.
Journal code: 7505876. ISSN: 0027-8424.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U63611; GENBANK-U63612; GENBANK-U63613; GENBANK-U63614; GENBANK-U63615; GENBANK-U63616; GENBANK-U63617; GENBANK-U63618; GENBANK-U63619; GENBANK-U63620; GENBANK-U63621; GENBANK-U63622; GENBANK-U63623
ENTRY MONTH: 199611
ENTRY DATE: Entered STN: 19961219
Last Updated on STN: 19961219
Entered Medline: 19961125

L4 ANSWER 8 OF 1041 MEDLINE on STN
TI A water channel closely related to rat brain aquaporin 4 is expressed in acid- and pepsinogen-secretory cells of human stomach.
AB We isolated a cDNA clone encoding a water channel protein, aquaporin (AQP), from human stomach. The encoded protein consisted of 323 amino acid residues, containing six putative transmembrane domains. The protein was designated human aquaporin 4 (hAQP4) because of its 94% sequence similarity to rat brain AQP4. Expression of hAQP4 cRNA in *Xenopus* oocytes resulted in a

significant increase in osmotic water permeability, indicating that this protein functions as a water channel. Northern blot analysis demonstrated a strong signal of hAQP4 mRNA in brain, lung, and skeletal muscle as well as in stomach. Immunohistochemical experiments with human stomach tissues showed that hAQP4 as a protein is expressed mainly in cells located in the glandular portion of the fundic mucosa. These include chief cells which secrete pepsinogen and parietal cells which secrete hydrochloric acid. These results strongly indicate that hAQP4 is a principal factor involved in the osmotic regulation of pepsinogen and acid secretion in the stomach.

ACCESSION NUMBER: 96176324 MEDLINE
DOCUMENT NUMBER: 96176324 PubMed ID: 8601457
TITLE: A water channel closely related to rat brain aquaporin 4 is expressed in acid- and pepsinogen-secretory cells of human stomach.
AUTHOR: Misaka T; Abe K; Iwabuchi K; Kusakabe Y; Ichinose M; Miki K; Emori Y; Arai S
CORPORATE SOURCE: Department of Applied Biological Chemistry, Division of Agriculture and Agricultural Life Sciences, The University of Tokyo, Japan.
SOURCE: FEBS LETTERS, (1996 Mar 4) 381 (3) 208-12.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-D63412
ENTRY MONTH: 199605
ENTRY DATE: Entered STN: 19960517
Last Updated on STN: 19990129
Entered Medline: 19960503

L4 ANSWER 9 OF 1041 MEDLINE on STN
TI Nucleotide sequence of a cDNA for a water channel protein (aquaporin) homolog from Atriplex canescens (Pursh.) Nutt.
ACCESSION NUMBER: 95357416 MEDLINE
DOCUMENT NUMBER: 95357416 PubMed ID: 7543207
TITLE: Nucleotide sequence of a cDNA for a water channel protein (aquaporin) homolog from Atriplex canescens (Pursh.) Nutt.
AUTHOR: Cairney J; Newton R J; Funkhouser E A; Chang S; Hayes D
CORPORATE SOURCE: Institute of Paper Science and Technology, Department of Forest Biology, Atlanta 30318-5794, USA.
SOURCE: PLANT PHYSIOLOGY, (1995 Jul) 108 (3) 1291-2.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-U18403
ENTRY MONTH: 199509
ENTRY DATE: Entered STN: 19950921
Last Updated on STN: 19960129
Entered Medline: 19950905

L4 ANSWER 10 OF 1041 MEDLINE on STN
TI cAMP-dependent phosphorylation stimulates water permeability of aquaporin-collecting duct water channel protein expressed in Xenopus oocytes.
AB Among water channel proteins (aquaporins), aquaporin-collecting duct (AQP-CD) is the vasopressin-regulated water channel. Vasopressin causes cAMP production in the renal collecting duct cells, and this is believed to lead to exocytic insertion of water channel into the apical membrane (shuttle hypothesis). AQP-CD contains a consensus sequence for

cAMP-dependent protein kinase, residues at positions 253-256 (Arg-Arg-Gln-Ser). To determine the role of this site, Ser-256 was substituted for Ala, Leu, Thr, Asp, or Glu by site-directed mutagenesis. In *Xenopus* oocytes injected with wild-type or mutated AQP-CD cRNAs, osmotic water permeability (Pf) was 4.8-7.7 times higher than Pf of water-injected oocytes. Incubation with cAMP plus forskolin or direct cAMP injection into the oocytes increased Pf of wild-type, but not mutated, AQP-CD-expressing oocytes, whereas the amounts of AQP-CD expression were similar in wild and mutated types as identified by Western blot analysis. *In vitro* phosphorylation studies of AQP-CD proteins expressed in oocyte showed that cAMP-dependent protein kinase phosphorylated wild-type, but not mutated, AQP-CD proteins. Phosphoamino acid analysis revealed that this phosphorylation occurred at the serine residue. Moreover, phosphorylation of AQP-CD protein in intact rat kidney medulla tissues was stimulated by incubation with cAMP. Our data suggest that cAMP stimulates water permeability of AQP-CD by phosphorylation. This process may contribute to the vasopressin-regulated water permeability of collecting duct in addition to the apical insertion of AQP-CD by exocytosis.

ACCESSION NUMBER: 95256192 MEDLINE
DOCUMENT NUMBER: 95256192 PubMed ID: 7537730
TITLE: cAMP-dependent phosphorylation stimulates water permeability of aquaporin-collecting duct **water channel protein** expressed in *Xenopus* oocytes.
AUTHOR: Kuwahara M; Fushimi K; Terada Y; Bai L; Marumo F; Sasaki S
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